

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS**

**REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 358  
POLYSTYRENE FOAM OPERATIONS  
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**SECTION 100 - GENERAL**

- 101 PURPOSE:** The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from manufacturing expanded-polystyrene (EPS foam) products.
- 102 APPLICABILITY:** This rule is applicable to any facility for which the combined annual VOC emissions from the following total 5 tons or more: manufacturing EPS foam, storing expanded and/or raw EPS, and making EPS foam products.

**SECTION 200 - DEFINITIONS**

- 2\_\_ BLOCK (EPS FOAM BLOCK) –** A block-shaped solid made of EPS foam that was molded as a unit and typically has a depth and width each exceeding 23 inches (0.6 M) and a length exceeding 95 inches (2.4 M).
- 2\_\_ BLOWING AGENT –** Any substance that alone or in conjunction with other substances is capable of producing by inflation a cellular (foam) structure in a polymeric material.
- 2\_\_ CUP MOLDING –** Making cups, bowls, and similar containers by molding expanded polystyrene. .
- 2\_\_ EMISSION CONTROL SYSTEM (ECS) –** A system, approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions of volatile organic compounds. Such system consists of an emissions collection subsystem and an emissions-processing subsystem.
- 2\_\_ EPS BEADS (EXPANDABLE POLYSTYRENE BEADS) –** Polystyrene beads or granules, usually less than one-twelfth inch in diameter, that are formulated with a blowing agent (typically 3 to 7 percent of bead mass). When subjected to prescribed heating, the beads puff up, **expanding** many times their original volume into low density foam globules (prepuff) from which a variety of EPS foam products are molded.
- 2\_\_ EPS FOAM (EXPANDED POLYSTYRENE FOAM) –** A lightweight, naturally white, rigid, thermoplastic-foam material from which a variety of popular items are made, such as insulation board, packing material, and disposable "coffee cups". EPS foam is made by processing EPS beads.
- 2\_\_ EPS FOAM BOARD –** A rigid sheet of EPS foam that is a slice from an EPS block. For the purposes of this rule, a foam board product includes EPS foam board and those products made from EPS board.

2\_\_ **EXPANSION-DAY** – The 24-hour period beginning at 12:00 midnight during which the facility expands at least 100 pounds of virgin EPS beads.

2\_\_ **FACILITY TEST RATE** – The maximum production rate desired by a facility, expressed in pounds-beads per day and/or pounds-VOC in the beads, per day. This rate is used during a source test and establishes the maximum rate of production allowed by the air permit.

2\_\_ **NONPRECURSOR ORGANIC COMPOUND** – Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as "exempt". A listing of the compounds is found in Rule 100 of these Air Pollution Control Rules and Regulations.

2\_\_ **PERMANENT TOTAL ENCLOSURE (P E)** – A permanently installed enclosure that both completely surrounds a source of emissions, such that all VOC emissions are captured as well as contained for discharge to a control device, and completely meets all of the requirements of a *permanent total enclosure* in EPA Method 204, referenced in Section 500 of this rule.

2\_\_ **P P H (POUNDS PER HUNDRED)** – The number of pounds of VOC per hundred pounds of raw beads initially conveyed from their gaylord/container into production.

2\_\_ **P M L T VOC-CONTENT** – See under **VOC CONTENT**.

2\_\_ **POLYSTYRENE** – Any grade, class, or type of thermoplastic polymer, copolymer, interpolymer, alloy, or blend that is composed of at least 50%, by mass, polymerized styrene monomer.

2\_\_ **PRE-PUFF or PUFF** – Expanded polystyrene globules, prior to molding, formed from EPS beads/granules that have been processed in an expander.

2\_\_ **SHAPE** – An object made out of EPS that has been molded into a shape other than that of a block, cup, or loose fill.

~~2\_\_ **S-TEST** – A source-test of an EPS facility that was conducted to comply with this rule and meets the applicable requirements of this rule, and has been recognized as such by the Control Officer in writing and such recognition is still current.~~

2\_\_ **VOC CONTENT** – For the purposes of this rule there are different expressions of the VOC content of raw EPS beads:

2\_\_.**1** **Bead Model VOC-Content** – The typical VOC content of raw EPS beads, given by their manufacturer in its description of a particular bead model or, absent that, the midpoint of the range of VOC-content given by the manufacturer for a bead model. For example, Nova Chemicals listed "4.2" (pounds of pentane per 100 lbs. of beads) as the "TYPICAL PENTANE LEVEL" for its model "M97B" beads.

2\_\_.**2** **Manufacturer-Certified Bead-Lot (MCBL) VOC Content** – The numerical VOC content of an EPS bead-lot having all of the following context: it is printed on a paper document by the bead manufacturer consequent to a

VOC-content analysis of the lot, before shipping from the facility of manufacture; the bead-lot is identified on the paper document using appropriate code-labeling; and the document is signed by an officer of the manufacturing facility or by a member of management of the laboratory that performed or oversaw the particular analysis.

- 2\_\_3 Post-Manufacture Laboratory-tested VOC Content (PMLT VOC Content)**  
: The result of a laboratory test of the VOC content of a properly handled sample of raw EPS beads – or of an intermediate or finished expanded polystyrene product – conducted by a laboratory experienced with such testing some time after the **Manufacturer-Certified Bead-Lot VOC Content** was issued.

- 2\_\_ VOLATILE ORGANIC COMPOUND (VOC)** – Any organic compound that participates in photochemical reactions, except non-precursor organic compounds.

### **SECTION 300—STANDARDS**

~~301 EPS BLOCK MAKERS:~~ An owner or operator of an EPS block-making facility shall limit the sum of the mass of VOC emitted by all production processes plus the mass of VOC retained in all block to not more than 3.00 lbs. of VOC per 100 lbs. of raw beads input as set forth in Formula #1a. An equivalent formula, #1b, may be used for source testing.

**FORMULA #1a:**  ~~$\Sigma VOC_{\text{block}} + \Sigma VOC_{\text{to-atmos}} \leq 3.00 \text{ lbs./100 lbs. input}$~~

**FORMULA #1b:**  ~~$\Sigma VOC_{\text{raw}} - \Sigma VOC_{\text{into ECS}} + \Sigma VOC_{\text{out ECS}} \leq 3.00 \text{ lbs./100 lbs. input}$~~

### **WHERE:**

~~$\Sigma VOC_{\text{into ECS}}$  is the amount of VOC detected/calculated entering the ECS or — if more than one control device — the aggregated amount into all control devices.~~

~~$\Sigma VOC_{\text{out ECS}}$  is the amount of VOC detected/calculated exiting the stack of the ECS or — if more than one control device — the aggregated amount exiting all control devices).~~

~~$\Sigma VOC_{\text{raw}}$  is the total amount of VOC in the beads processed as determined by post-manufacturer lab. testing of bead samples within 30 minutes of unsealing the container. [[See §504 for the conditions of testing.]]~~

~~$\Sigma VOC_{\text{block}}$  is the total amount of VOC retained in the freshly molded product, determined by post-manufacture lab. test. [[See §504 for the conditions of testing.]]~~

~~$\Sigma VOC_{\text{to-atmos}}$  is the total amount of VOC that permanently escapes to atmosphere.~~

~~{Derivation of formula #1b is in Appendix}~~

## **SECTION 300 – STANDARDS**

**301 EPS BLOCK-MAKERS:** By July 1, 2004, an operator of an EPS block-making facility shall comply with 1 of the following 2 subsections, 301.1 or 301.2.

**301.1** Operate an ECS and regulate the EPS manufacturing process such that for every 100 pounds of beads processed, not more than 1.4 pounds of VOC escapes to atmosphere between the time that the bead packaging is opened and 48 hours after the block is released from the mold.

**OR**

**301.2** Maintain and consistently operate an ECS such that it effectively handles all production rates and bead VOC-contents with which the facility operates, and

- a. Demonstrate 81% overall reduction of VOC emitted collectively, from all processing operations, starting from the time that the bead packaging is opened to the release of the block from the mold; and
- b. During the source test use only bead types that meet the description in either subsection b1 or subsection b2:

1. The beads have an MCBL VOC-content that the operator chooses as an upper limit; **OR**
2. The beads have a VOC-content between 4.4 and 4.9%.

**302 SHAPE MAKERS:** By July 1, 2004, the operator of an EPS shape-making facility shall operate an ECS and regulate the EPS manufacturing process such that for every 100 pounds of beads processed, not more than 1.0 pound of VOC escapes to atmosphere between the time that the bead packaging is opened and 48 hours after the shapes made from the beads are released from their molds.

~~**302 Shape-Makers:** The Owner or Operator of an EPS shape-making facility shall limit the sum of the mass of VOC emitted by all production processes plus the mass of VOC retained in all freshly molded shapes to not more than 3.00 lbs. of VOC per 100 lbs. of raw beads input, according to Formula #2a. Formula #1b in §301 may be use for source testing.~~

**303 CUP MAKERS:** By July 1, 2004, the operator of an EPS cup manufacturing facility shall operate an ECS and regulate the EPS cup-manufacturing process such that for every 100 pounds of beads processed, not more than ?? 1.3 ?? pounds of VOC escapes to atmosphere between the time that the bead packaging is opened and 48 hours after the cups are released from their molds.

~~303 CUP MAKERS:~~

~~303.1 Cup Making Emission Standard:~~ The Owner or Operator of an EPS cup making facility shall meet the following standards in the course of processing raw beads to form cups:

- ~~a. Control with an ECS the VOC emissions from VOC emitting processes that occur from opening the bead packaging through aging until the prepuff reaches the molding machine, such that the aggregate emissions to the atmosphere from these process are reduced at least 85% overall using Formula #3.~~

**FORMULA #3:**

$$\frac{\sum VOC_{intoECS} - \sum VOC_{outECS}}{\sum VOC_{raw} - \sum VOC_{intoMold}} \geq 0.85$$

~~Where the first 3 terms have the same meaning as in §301.1b and~~

~~$\sum VOC_{intoMold}$  is the total amount of VOC retained in the prepuff being admitted to all production molds~~

- ~~b. In addition to the 85% control requirement of §303.1a, permanent total enclosure(s) of all production prepuff aging/curing is required. Such enclosure methods may include but are not limited to the encapsulating of aging bags within larger bags made of impervious material; **AND**~~

~~303.2 An owner or operator shall comply with either §303.2a or §303.2b.~~

- ~~a. Through aging practices, limit the averaged value of VOC content of all prepuff entering molding machines to no more than 3.0 lbs. of VOC per 100 lbs. of prepuff. The averaged value shall be determined from pooled samples, sampling each active production line according to §504.4;~~

~~**OR**~~

- ~~b. Enclose all the molding machines and with an Emission Control System reduce VOC emissions from the enclosed molding machines by at least 85%, as determined by testing and calculations, ref. §503 and §504.~~

ref. §503 and §504.

~~304 DETERMINATION OF RESIDUAL VOC CONTENT OF BLOCKS AND SHAPES:~~ During such periods that VOC emissions from the final manufactured product (AKA freshly molded product) are vented only to ECS, measurement of residual VOC in the product to determine compliance with §301.1 or §302 is moot, if there is no delay in transferring the product from mold to the ECS served total enclosure.

**304 305 BEAD VOC LIMIT:** An owner or operator shall either not use no beads with a MCBL VOC Content greater than 6% 0 pounds of VOC per 100 pounds of raw beads or ~~shall limit use of such beads each expansion day to conform to the following averaging formula.~~

**FORMULA TO DETERMINE AND LIMIT THE AVERAGE VOC CONTENT OF EPS BEADS:**

$$VOC_w = \frac{[M_1 C_1 + M_2 C_2 + \dots + M_n C_n]}{[M_1 + M_2 + \dots + M_n]} \times 100 \leq 5.4$$

where:

~~P~~ = Current or subject expansion day.

~~"VOC CONTENT"~~ = either ~~MCBL VOC Content~~ or ~~PMLT VOC Content~~

~~VOC<sub>w</sub>~~ = The weighted average percent VOC content of all "n" batches of beads (#"1" through #"n") used during the averaging period, ~~P~~, throughout the facility, expressed in percent VOC by mass.

~~C<sub>1</sub>~~ = The VOC content of the first bead batch used during period, ~~P~~, expressed in fractional lbs. VOC per 1 lb. of beads.

~~C<sub>2</sub>~~ = The VOC content of the second bead batch used during period, ~~P~~, expressed in fractional lbs. VOC per 1 lb. of beads.

~~C<sub>n</sub>~~ = The VOC content of the very last bead batch used during period, ~~P~~, expressed in fractional lbs. VOC per 1 lb. of beads.

~~M<sub>1</sub>~~ = The total mass of bead batch #1 used during period, ~~P~~, expressed in lbs. VOC.

~~M<sub>2</sub>~~ = The total mass of batch #2 used during period, ~~P~~, expressed in lbs. VOC.

~~M<sub>n</sub>~~ = The total mass in lbs. of the last bead batch used in period, ~~P~~, during which time beads from "n" different batches were used.

**305 306 CONTROL OF AGING EMISSIONS WHEN NO EXPANDING OR MOLDING OCCURS:**

30 .1 Control devices shall be operated to control prepuff VOC emissions whenever there is prepuff present, even when there is neither expanding nor molding;

30 .2 Prepuff that has lost sufficient pentane/VOC that it cannot by itself be molded must be clearly labeled to be exempt from the requirement in (the previous) subsection 30 .1.

**306 307 PERFORMANCE OF ECS CONTROLLING AGING EMISSIONS:**

A processing subsystem (control device) of an ECS serving a prepuff aging space shall reduce the weight of non-methane organic carbon (NMOC) in the VOC delivered to it from prepuff aging space by at least 94% for inlet concentrations greater than or equal to 1.0 gram NMOC/ meter<sup>3</sup>, and to a concentration not exceeding 60 mg. NMOC/meter<sup>3</sup> when inlet concentration is less than 1.0 gram NMOC/meter<sup>3</sup>.

**307 308 FURTHER REQUIREMENTS:**

**307.1 308.1 Operation And Maintenance (O&M) Plan Required For An ECS:**

- a. An owner/operator shall provide, implement, and maintain an O&M Plan for each ECS, for any other emission processing equipment, and for any ECS monitoring devices that are used pursuant to this rule.

- b. The owner/operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.
- c. The O&M Plan shall also include limits on the production characteristics that correlate with the operating parameters established for the ECS during the applicable initial source test demonstrating compliance with this rule.
- d. **O&M Plan Responsibility:** An owner or operator of an EPS facility must comply with all O&M Plans that the owner or operator has submitted for approval but which have not yet been approved, unless notified otherwise by the Control Officer in writing..

307.2 ~~308.2~~ **Installing and Maintaining ECS Monitoring Devices:** Any person incinerating, adsorbing, or otherwise processing VOC emissions pursuant to this rule shall properly install and maintain in calibration, in good working order, and in operation, ECS-monitoring devices described in the facility's O&M Plan. ~~that indicate temperatures, pressures, rates of flow, or other operating conditions necessary~~ These devices serve to determine if air pollution control equipment is functioning properly and is properly maintained. Typical devices indicate temperature, pressure, flow rate, and/or other functions correlated with proper functioning of VOC-reduction equipment. Records shall be kept pursuant to Section 500.

308 ~~309~~ **VOC CONTAINMENT AND DISPOSAL:**

308.1 ~~309.1~~ All fresh and used VOC-containing material, including but not limited to cleaning solvents, inks, coatings, thinners, and rags having such materials or their residues on them, as well as VOC-containing residues themselves, shall be stored in closed, leak free, ~~legibly~~ labeled containers when not in use. ~~However,~~ VOC emissions from molded EPS that is diverted as scrap and waste need not be controlled nor must such material be placed in leak free containers; AND

308.2 ~~309.2~~ In addition, the owner or operator must implement handling and transfer procedures to minimize spills during filling and transferring such material (listed in ~~§309.1~~ subsection 308.1) to or from enclosed systems, vats, waste containers, and other equipment. ~~that hold or store such material(s),~~ whether it is fresh, used, or waste.

309 ~~340~~ **EXEMPTIONS:**

309.1 ~~340.1~~ **De Minimis Exemption From Subsections 301 through ~~308:a~~ 307.2:** Any facility that both expands less than 1,438,850 lbs. of EPS raw material/beads per year and emits less than 50 tons per year of VOC, **prior to emission control**, from all EPS-related activities, including on-site storage, is exempt from subsections 301 through ~~308.2~~, inclusive.

309.2 ~~b.~~ **Burden of Proof:** A person claiming any exemption from this rule or from a provision of this rule shall provide adequate to verify and maintain any

exemption. These may include records of raw material used, laboratory analyses, technical data sheets, and/or source test results.

~~310.2 Exemption From Aging emissions Control Requirement: A facility that is attempting to pass a source test without using any emission control device to control VOC emissions from aging is not subject to §307.~~

## SECTION 400 - ADMINISTRATIVE REQUIREMENTS

**401 COMPLIANCE SCHEDULE:** A person subject to this rule shall comply with the following increments of progress:

**401.1** By (date 46 months after date of adoption), submit to the Control Officer an application for a permit revision to install and operate equipment to be used to achieve compliance with this rule.

**401.2** By June 15, 2004 ~~(date 22 months after date of adoption)~~, complete the installation of all equipment required to meet the provisions of this rule

**401.3** By July 20, 2004 ~~(date 23 months after date of adoption)~~, complete *the test* documenting compliance with this rule.

~~401.4 By (date 24 months after date of adoption), submit an application for a permit revision to incorporate limits for the production characteristics that correlate with the EGS operating parameters established by the test.~~

~~401.5 By (date 24 months after date of adoption), submit an update to the O & M Plan to include limits for the production characteristics that correlate with the EGS operating parameters established by the test.~~

~~401.6 By (date 24 months after date of adoption) EPS molders shall have permanently instituted the expertise, production regimens, and equipment to sustain the following provisions:~~

~~a. Block makers and shape makers shall consistently comply with §301 and §302, respectively.~~

~~b. Cup makers shall meet the limit of 3.0% VOC in prepuff entering molds, averaged across all lines in production, as required by §303.2.~~

## SECTION 500 - MONITORING AND RECORDS

**501 Records:** Effective [date: 3 months after adoption], a person subject to this rule shall comply with the following requirements in subsections 501.1 through 501.3, as applicable. Required records shall be retained for at least 5 years. Information that a facility already records for other purposes is acceptable to meet the requirements if it contains all the required information and in a format implied by the requirements below. It is not acceptable, for example, for separate data streams that need to be formatted together to be listed only on separate sheets.

**501.1** An owner or operator shall obtain and retain an original or copy of the *manufacturer-certified bead-lot VOC content or PMLT VOC-content* for every lot-number of beads received.

**501.2** ~~E~~ During each workday a new shipment of beads is received, maintain a log that lists ~~records the following information together: The date and, for each bead lot~~

~~not yet logged~~, the date received, the manufacturer, the model number, the lot number, and the lot quantity ~~of that lot received~~.

**501.3** Maintain daily records of the total weight of each type of bead processed and the hours of operation of each expander and each molder.

~~**501.4** If means other than actual testing of VOC content (e.g., Method 45) are used to comply with §301 or §302, an operator shall make and keep a hardcopy demonstration of relationships between VOC content (as determined by the test method) and parameters found to correlate with residual VOC content of the product as released from its mold. An adequate summary of this demonstration for each initial VOC content range and each density range in increments of 0.4 lbs./100 lbs. beads and 0.4 lbs./cubic foot shall be submitted with the O&M Plan.~~

~~**501.5** **Surrogate Measures for Cup makers:** If means other than actual testing of VOC content (e.g., Method 45) are used to comply with §303.2a, an operator shall make and keep a hardcopy demonstration of relationships between VOC content (as determined by the test method) and parameters found to correlate with actual prepuff VOC content prior to molding, that are used to determine when each batch of prepuff meets the VOC content requirements. An adequate summary of this demonstration for each initial VOC content range, and each density range in increments of 0.4 lbs./100 lbs. beads, and 0.4 lbs./cubic foot shall be submitted with the O&M Plan.~~

## **502 RECORDKEEPING REQUIREMENTS:**

**502.1 General:** Recordkeeping processes shall be complete, and up-to-date, in a ~~and of~~ consistent and legible format such that the bead-model VOC content of beads being expanded, the beads' minimum aging parameters, if stated (e.g., in the O&M Plan or permit), and actual current values of such aging parameters shall be ~~made~~ readily apparent.

**502.2** A person operating an ECS to comply with this rule shall record key system operating parameters such as temperature, flow rate, and pressure on a daily basis.

**503 TESTING PROCEDURES FROM FORMAL REFERENCES:** A source shall be in violation if the VOC emissions, measured by any of the referenced test methods, exceed the standards of this rule.

**503.1 Analysis of Samples:** The VOC content and exempt compound content of raw polymerized materials subject to this rule shall be analyzed using Bay Area Air Quality Management District (BAAQMD) Manual of Procedures, Volume III, Method 22 and Method 45, as cited in subsection 504. Any lack of detail in Methods 22 or 45 shall be cause for supplementing with So. Coast AQMD's Method 306, as cited in subsection 504.

**503.2 Determination of Emissions:** The capture and control efficiency of an ECS as referenced in subsections 301 and 302 shall be measured by Environmental Protection Agency (EPA) Method 25 or 25A or by alternative South Coast AQMD District methods. When either EPA Method 25 or 25A is used, capture efficiency shall be determined according to EPA's "Guidelines for Determining Capture Efficiency," January 9, 1995 and/or 40 CFR 51, Appendix M, Methods 204 - 204F, as applicable. Methods 25, 25A, and the 204 series are referenced in §504. South Coast AQMD Method 25.3 may be selectively used for testing for low levels of VOC at the outlet of an ECS. Method 25.3 is referenced in §504.

- 503.3 Airflow:** Airflow in an ECS shall be determined by EPA Methods 2, 2a, 2c, and/or 2d, as applicable. These are referenced in §504.
- 503.4 Total Enclosure Integrity:** If at any time any opening into the inside of a presumed total enclosure does not continuously draw tracer-"smoke" through itself into the enclosure when a tracer wand is deployed for detection at the opening's exterior plane, then – for the purposes of this rule – the enclosure at that time is not operating as a total enclosure.
- 504 TEST METHODS:** Each test method cited herein is the version of that method that is the most up-to-date on (date -- the day of adoption of this rule), unless otherwise specified in the citation.
- 504.1 Test Methods of the Bay Area Air Quality Management District:**
- a. BAAQMD Manual of Procedures, Volume III, Method 45, "Determination of Butanes and Pentanes in Polymeric Materials".
  - b. BAAQMD Manual of Procedures, Volume III, Method 22, "Determination of Compliance of Volatile Organic Compounds for Solvent Based Coatings".
- 504.2 EPA Methods:**
- a. EPA Methods 2 ("Determination of Stack Gas Velocity and Volumetric Flow Rate"), 2a ("Direct Measurement of Gas Volume Through Pipes and Small Ducts"), 2c ("Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts"), and 2d ("Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts") (40 CFR 60, Appendix A).
  - b. EPA Method 18 ("Measurement of Gaseous Organic Compound Emissions by Gas Chromatography") and its submethods (40 CFR 60, Appendix A).
  - c. EPA Method 25 ("Determination of Total Gaseous Nonmethane Organic Emissions as Carbon") and its submethods, including Method 25A, ("Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer") (40 CFR 60, Appendix A).
  - d. EPA Test Method 204 ("Criteria For and Verification of a Permanent or Temporary Total Enclosure"), 204a, 204b, 204c, 204d, 204e, and 204f (40 CFR 51, Appendix M).
- 504.3 South Coast AQMD Methods:**
- a. District Method 25.3, *Determination Of Low Concentration Non-Methane, Non-Ethane Organic Compound Emissions From Clean Fueled Combustion Sources*, South Coast Air Quality Management District, Monitoring and Analysis (section), by M. Garibay and staff, March 2000. This is presently (11/01) deemed a "conditional method" by EPA.

- b. SCAQMD Method 306 {Analysis of Pentanes in Expandable Styrene Polymers} contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

~~504.4 Sampling Pre-Mold Prepuff At a Cup-making Facility: If the test-review engineers of the Air Quality Division do not specify a sampling protocol for sampling pre-molding prepuff, use an applicable method in the Guidance to Rule 358. (currently in unfinished, unedited, preliminary form)~~  
Note: BOS would first have to adopt "the Guidance".

**504.4 504.5 Conforming Testing To Desired Production Characteristics:** ~~The emission limits in §301, §302, and §303 are based on the facility's operating during the source testing in a manner that rigorously supports all the modalities the owner/operator wants the permit to allow. [See example in Appendix].:-~~ The owner/operator of an EPS facility must, through source testing, demonstrate compliance with each alternative operating scenario chosen.

~~505 TESTING USING CHROMATOGRAPH: The owner or operator of a block-making facility and the owner/operator of a shape making facility shall regularly test for the amount of residual VOC in molded product. Sealed samples shall be secured within 15 minutes of product leaving the mold. In the absence of directives for more frequent sampling, both the highest VOC beads if over 5.8% bead model and at least one multi-aliquot sample of product shall be taken and analyzed no less than once every 92 days. Analysis shall be according to §503, et. seq.~~

#### APPENDIX TO RULE 358

##### DERIVATION OF FORMULA #1a

$$\sum VOC_{block} + \sum VOC_{to-atmos} \leq 3.00 \text{ lbs./100 lbs. input}$$

$$\sum VOC_{to-atmos} = [\sum VOC_{raw} - \sum VOC_{block}] - \sum VOC_{intoECS} + \sum VOC_{outECS}$$

It follows that:

$$\sum VOC_{block} + [\sum VOC_{raw} - \sum VOC_{block} - \sum VOC_{intoECS} + \sum VOC_{outECS}] \leq 3.00 \text{ lbs./100}$$

$$\text{Therefore: } \sum VOC_{raw} - \sum VOC_{intoECS} + \sum VOC_{outECS} \leq 3.00 \text{ lbs./100}$$

##### EXAMPLE OF TESTING DESIGNED TO ESTABLISH MAXIMUM PRODUCTION LEVEL ALLOWED BY THE PERMIT.

- a. The slowest process among aging, expanding and molding is run at (or no less than 90% of) its maximum rate (i.e., maximum pounds per hour); AND  
 b. The other 2 process shall be operated simultaneously at similar (pounds/hr) rates.